

5 What is Claimed is:

1. A method for controlling a memory in a digital system, comprising the steps of:

(a) dividing the memory into a plurality of fixed sized memory blocks;

(b) defining at least one of the memory blocks as a compression/decompression region;

10 (c) assigning compression priorities to rest of the memory blocks except the memory blocks defined as the compression/decompression region; and,

20 (d) making the memory blocks to deal with an external data received according to an external command, and carrying out compression/decompression of data required in the dealing with the external data at the compression/decompression region according to the compression priorities.

2. A method as claimed in claim 1, wherein the compression priorities are set based on access frequencies of the memory blocks.

20 3. A method as claimed in claim 1, wherein the dealing with data in the step (d) includes the steps of data insertion, data erasure, data updating, and data reading.

4. A method as claimed in claim 1, wherein the step of data insertion includes the steps of;

25 (a) comparing a size of data to be inserted in the memory to an empty memory obtained by compression of the memory blocks,

(b) inserting the data in the empty memory blocks when there are empty memory blocks as large as the data size to be inserted therein as a result of the comparison, and

5 (c) upon completion of the data insertion, finishing the step of data insertion when presently remained number of empty memory blocks are greater than a preset threshold value, and selecting a memory block to be compressed from the remained memory blocks according to the compression priorities when the presently remained number of empty memory blocks are greater than the preset threshold value.

10 5. A method as claimed in claim 4, wherein the step of selecting a memory block to be compressed presently in the step (c) starts from a moment starting to use a last empty memory block for the data insertion, or from a moment the preset threshold value is exceeded, with reference to the compression priorities.

20 6. A method as claimed in claim 1, wherein the data in the memory block selected for compression is accessible normally during compression of data.

7. A method as claimed in claim 1, further comprising the step of changing references indicating the data in the compressed memory blocks into first starting addresses of the compressed memory blocks, so that the presently accessing block is identified to be the compressed memory block when the data in the compressed memory block is indirectly accessed through the references.

25 8. A method as claimed in claim 1, further comprising the step of coming into an error processing state if there is no more space in the memory for accommodating the data to be inserted even after all the memory blocks are compressed as a result of the comparison.

5 9. A method as claimed in claim 1, wherein the step of reading includes a step of reading a data in a decompressed memory block after decompressing a compressed memory block at the compression/decompression region, if the memory block being accessed presently is a compressed block.

10 10. A method as claimed in claim 1, wherein the step of erasing includes the steps of;
(a) determining the data to be erased of being a data stored in the compression /decompression region,

(b) if it is determined that the data to be erased is a data stored, not in the compression /decompression region, but in the empty memory blocks as a result of the determination, and erasing the data,

15 (c) if it is determined that the data to be erased is a data stored in the compression /decompression region as a result of the determination, calculating a memory size occupied by the data to be erased in each data block in the compression/decompression region,

(d) comparing an occupied memory size in each memory block in the compression /decompression region and a threshold value of the occupied memory size, and

20 (e) erasing the compressed data and finishing the erasing step if the occupied memory size in each memory block calculated for each memory block is smaller than the threshold value of the occupied memory size as a result of the comparison, and decompressing the data if the occupied memory size in each memory block calculated for each memory block is
25 greater than the threshold value of the occupied memory size.

11. A method as claimed in claim 10, further including the step of;
comparing a number of empty memory blocks of the memory to the preset threshold

5 value of the empty memory block before the compressed memory block is decompressed, and
decompressing the compressed data only when the number of empty memory blocks
of the memory is greater than the preset threshold value of the empty memory block.

10 12. A method as claimed in claim 10, wherein the data in the memory block is
accessible normally until the erasing step is finished completely.

13. A method as claimed in claim 1, wherein the step of updating includes the steps
of;

(a) determining the data to be updated of being a data stored in the compression
/decompression region, or in a general memory block,

(b) if it is determined that the data to be updated is a data stored in the memory block
as a result of the determination, updating the data,

(c) if it is determined that the data to be updated is a data stored in the compression
/decompression region as a result of the determination, determining the data to be updated of
20 being a variable size type,

(d) if it is determined that the data to be updated is not a data of the variable size type
as a result of the determination, decompressing the compressed data temporarily and updating
the data to be updated, and

(e) if it is determined that the data to be updated is a data of the variable size type as a
25 result of the determination, assigning a new memory block, updating the data to be updated,
and erasing an existing data.

14. A method as claimed in claim 13, wherein the data in the memory block selected

5 during the step of updating is accessible normally during the updating of data.

15. A digital TV receiver comprising:

a tuner for receiving a digital broadcasting signal;

20 a TP (transport) signal analyzer for analyzing a TP signal from the digital broadcasting signal, to detect an audio signal and a video signal;

a decoder for separating and decoding the audio signal and the video signal analyzed at the TP analyzer;

an A/V decoder for decoding the audio signal and the video signal decoded in the decoder; and,

a microcomputer including;

a storage managing module for storing all the data from the tuner in forms of data blocks by indexing or hashing, and carrying out a function to find a desired block from the stored data blocks quickly,

20 a request processing module for facilitating storage of a desired data in a memory, or erasing or finding the desired data from the memory,

a synchronism control module for processing various requests on the same time, and

a memory managing module for managing the memory with the memory divided into same sized blocks,

25 the memory for storing channel, program, and information data received through the tuner into fixed sized blocks, with the channel, program, and information data divided;

an OSD (On Screen Display) processor for processing an OSD text; and,

a display for selectively superimposing, and displaying an A/V signal decoded at the A/V decoder and the OSD text from the OSD processor.